

ROLE OF THE AIR ADMINISTRATION IN ARCTIC TRANSPORTATION

(Handout at The Arctic Transportation Conference, Yellowknife, 1970)

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ROLE OF THE AIR ADMINISTRATION IN ARCTIC TRANSPORTATION

The CATA role with respect to Arctic Transportation is basically involved with -

Flight Safety and Control
Navigational Aids and Communications
Airports and Associated Facilities

A brief description of the services provided in each of these basic areas is as follows.

FLIGHT SAFETY AND CONTROL

This activity includes the promulgation and enforcement of Air Navigation Orders and Rules of the Air. It also includes licencing of air crew and ground personnel, aircraft and airports as well as accident investigation.

In addition, air traffic services are provided which include positive control of high level traffic as well as landing, take-off and enroute advisory service for low level traffic. A flight plan and flight notification monitoring service to alert Search and Rescue in the event of a lost or overdue aircraft is also provided.

NAVIGATIONAL AIDS AND COMMUNICATIONS

Electronic Aids

There is currently a network of some 80 electronic aids in the Arctic. The majority of these are operated by MOT at a cost of some four million dollars annually. The capital investment to date is approximately 16 million.

The existing Arctic system consists primarily of low frequency *NDBs along with a few *LFRs and military *TACANs. Four of the major airports also have instrument landing systems. The main difference between the navigation system in northern and southern Canada is *VOR.

- *NDB - Non-Directional Radio Beacon
- *LFR - Low Frequency Radio Range
- *TACAN - Tactical Air Navigation UHF OMNI RANGE
- *VOR - VHF OMNIDirectional Radio Range

No VORs have been installed in the Arctic to date for a variety of reasons - high initial and operating costs, low potential utilization and technical difficulties to name a few. Also, many of the aircraft operating in the Arctic are not equipped to use VOR while virtually all can use LFRs or NDBs.

Visual Aids

Visual aids are particularly important in the Arctic due to the featureless terrain, compass unreliability and vast distances between electronic navigational aids. Also, there are the long hours of darkness during winter months. Aids provided by the Air Administration include rotating beacons at airports, visual approach slope indicators, runway identification lights, runway and approach lighting systems and high visibility paint on buildings. The criteria for aeronautical charts is also provided and regulations concerning the marking of obstructions and cable crossings are enforced.

Communications

Fast and efficient communications are essential to the aviation industry for flight planning, air traffic control, weather information, and notices to airmen (NOTAMS); also for search and rescue or other emergencies. Because of the vast distances and sparse population in the Arctic, communication costs are high and facilities are limited. However, telephone communications for Air Traffic Control purposes in the north are generally well established on three main routes out of Edmonton. The first route covers the Athabaska River, Great Slave Lake area and Northward to Hay River and Yellowknife. The second is the route through Peace River Fort Vermillion, Fort Simpson and down the Mackenzie River to Norman Wells and Inuvik. The third follows the commonly known "Staging Route" through Grande Prairie, Fort St. John, Beatton River, Fort Nelson, Smith River, Watson Lake, Whitehorse, Aishihik, Snag and Northway. Also a direct circuit connects Edmonton and Cambridge Bay where an interconnection provides vital telephone communications with Anchorage, Alaska and Sondrestrome, Greenland.

As commercial facilities are expanded and improved to the areas immediately west of Hudson's Bay and north to the Arctic Islands, Air Traffic Control circuits will probably be extended accordingly as traffic warrants.

The Ministry also operates a vast network of "Air to Ground" radio communication stations throughout the north. These facilities perform a valuable service not only to the air traffic operations but to the isolated communities as well where commercial facilities are limited. The "umbrella" of air-ground communications is tied together by a network of teletype and radio-teletype circuits in addition to the ATC circuits previously mentioned. This teletype network has recently been upgraded to a fully automatic system as far north as Inuvik, Cambridge, Churchill, Frobisher and Goose Bay where reliable landline facilities are available. At more northerly or isolated points, the network is extended by means of radioteletype and radio-telephone circuits.

AIRPORTS

Essentially the Ministry of Transport assumes full responsibility for construction and maintenance of airports required in support of regular commercial air services operating with a frequency of at least fifty scheduled arrivals and departures per annum.

Additionally, the MOT has a policy which provides for a cost sharing, financial assistance approach up to a maximum of \$100,000 for the construction of airports required to relieve isolation in communities or settlements not served by reliable methods of surface transportation on a year-round basis. The determination of need and the extent of Ministry participation up to the \$100,000 maximum is established on the basis of consultation with DIAND and other government departments and agencies. These policies are now under review and may be changed with effect on 1971-72 and future programmes. With regard to private airport development, the Ministry provides technical advice on request and ensures that adequate safety standards are maintained.

There are on record some 88 land airfields and 62 seaplane bases located in the Arctic. In addition, abandoned airfields developed by resource exploration companies are still used on occasion by local pilots familiar with their condition. Also, unprepared seaplane or ski areas are regularly used to serve remote communities or field parties except during breakup and freezeup periods. These facilities serve a one and a half million square mile land mass with a population of approximately 50,000. MOT now has an investment of 76 million in Arctic airports and direct operating costs amount to 4.5 million annually.

PROPOSED LAND AIRFIELDSMOT

BEAVER CREEK Y.T.	69-70
COPPERMINE N.W.T.	69-70
CAPE HOPES ADVANCE (KOARTAK)	72-73

DIAND

PANGNIRTUNG	71-72
ESKIMO POINT	71-72

FORT MCPHERSON	72-73
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AKLAVIK	72-73
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CHESTERFIELD INLET	72-73
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POND INLET	73-74
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WHALE COVE	73-74
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IGLOOLIK	75-76
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PROPOSED NAVIGATIONAL AIDS

NDB's

Fort Reliance	1970-71
Fort Smith	1970-71
Port Radium	1973-74
Teslin	1971-72
Watson Lake	1973-74

ILS's

Hay River	1971-72
Watson Lake	1974-75
Fort Chimo	1972-73
Fort Smith	1973-74

VOR's

Watson Lake	1972-73
Whitehorse	1971-72
Yellowknife	1973-74
Frobisher	1970-71
Fort Chimo	1971-72

DME's

Watson Lake	1972-73
Whitehorse	1971-72
Yellowknife	1973-74
Frobisher	1971-72

Date Due

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Role of the Air Administration
in arctic transportation.

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